

A SOLAR POSITION APPROXIMATION GRAPH

The attached graph can be used to approximate the sun's position in the Tucson area any time of the year. With this graph a photographer can enter the angle and elevation desired for a particular lighting effect. The compass angle or azimuth is entered using the scale on the bottom. The elevation is entered using the scale on the side. Note that the user has to correct for magnetic declination. In Tucson, it is about 11 degrees to the east so you must add 11 degrees to any compass readings.

The five curves are for various times of the year and are based on the assumption that the sun's position is the same on two days of the year except for the longest and the shortest day. The top curve is for June 21st. This is the longest day of the year. The bottom curve is for December 21st, the shortest day of the year. The adjacent curves are for 30 days before and after the longest and shortest days of the year. Hence the next to the top curve is for May 21st and also for July 21st. The sun's vertical position changes very little from day to day at this time of the year. The same is true for the days near December 21st. Here the next-to-the-bottom curve is for both November 21st and also January 21st. The middle curve is for both March 21st and September 21st.

The data points on these curves are for even numbered hours, starting at 6 AM. The highest points are for 12 o'clock or noon and the right most points are for 6 PM. It is up to the user to interpolate between the dates and times to determine the date and time that the sun is in the proper position.

Once an approximate date has been determined, the NOAA Solar Position Calculator can be used, on a trial and error basis, to determine the exact date and time. In most cases, such a refinement should not be necessary. This same calculator can be used to produce similar graphs for other locations.